ADVANCED ANALYTICAL RESEARCH
2517 Advance Rd, Ste A
Madison WI 53718
www.aarlab.com

HOP QUALITY REPORT
CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 22MIC1087-01LH

Variety: Michigan Copper™ Whole Cone ☐

Date : 12/3/2022 Pellet ☑

Certifying Officer: Zach Lilla - Lab Manager
TTB Certified Chemist - Member AOAC - ASBC - BJCP

Method				
Hops-4C	Moisture Analysis	% Moisture	10.1	
		% Dry Matter	89.9	
AAR	Xanthohumol by HPLC		**NT**	**mg/g**
Hops-12	Hop Storage Index	HSI	0.296	
Hops-13	Essential Oil by Steam Distillation	**mL/100g**	**1.55**	
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	29.9	(% of Total AA)
ICE-3		**% Alpha Acids**	**9.25**	
		Colupulone	55.4	(% of Total BA)
		% Beta Acids	**2.95**	
		a/b ratio	3.14	

Hops-17 Hop Essential Oil by GC-FID (as is)	% area	mg/100g
B-Pinene	NT	NT
Myrcene	NT	NT
Linalool	NT	NT
Caryophyllene	NT	NT
Farnesene	NT	NT
Humulene	NT	NT
Geraniol	NT	NT

NT=NOT TESTED

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist
AAR LAB - ADVANCED ANALYTICAL RESEARCH
2517 Advance Rd Ste. A Madison WI 53718

info@aarlab.com
www.aarlab.com
608-622-7522

AROMA QUALITY (AQ)
HOP QUALITY REPORT

Customer : Wisconsin Hop Exchange

Sample ID: 22MIC1087-01LH

Variety: Michigan Copper™ Whole Cone ☐ Pellet ☑

Date : 12/3/2022

Certifying Officer: Zach Lilla - Lab Manager
TTB Certified Chemist - Member AOAC - ASBC - BJCP

		Typical Range	
% Moisture	10.1	8 - 12%	✓

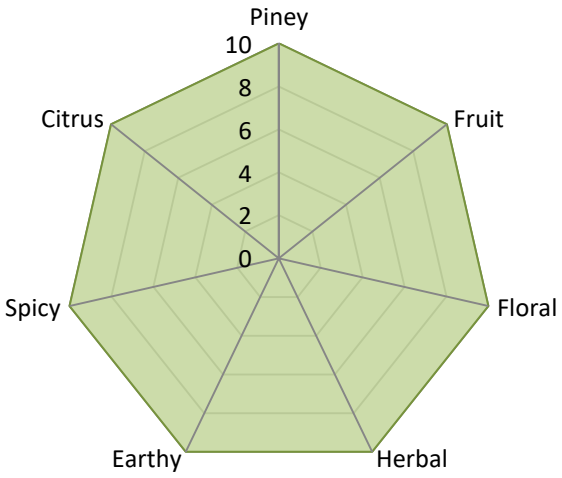
HOP QUALITY (adjusted to 10% moisture)

Total Oil ml/100g	1.55	1.2 - 1.8 ml	✓
cohumulone	29.9	27 - 32%	✓
Alpha Acids	9.25	9.0 - 13%	✓
Beta Acids	2.95	2.0 - 3.0%	✓

AROMA QUALITY (AQ)

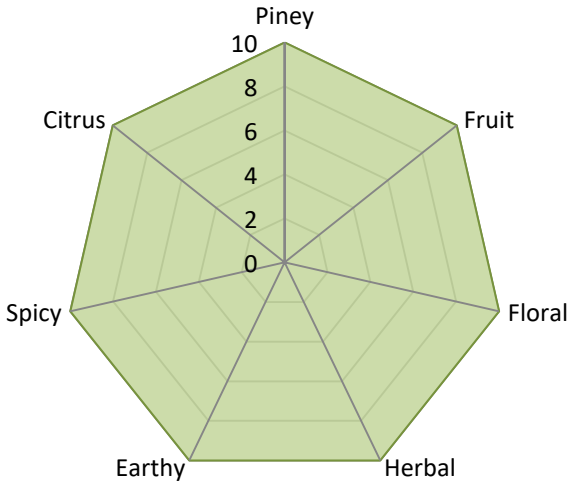
	% Area			mg/mL of Hop Oil			mg/100g of Hops (@10%H20)		
B-Pinene	NT	0.40 - 1.00 %		NT	4 - 10		NT	4.8 - 18	
Myrcene	NT	28.00 - 38.00 %		NT	280 - 380		NT	336 - 684	
Linalool	NT	0.6 - 1.20 %		NT	6 - 12		NT	7.2 - 21.6	
Caryophyllene	NT	9.00 - 12.00 %		NT	90 - 120		NT	108 - 216	
Farnesene	NT	0.01 - 1.00 %		NT	0.1 - 10		NT	0.12 - 18	
Humulene	NT	17.00 - 23.00 %		NT	170 - 230		NT	204 - 414	
Geraniol	NT	0.60 - 1.00 %		NT	6 - 10		NT	7.2 - 18	

AQ vs VARIETY SPECS



Aroma Intensity= 100

AQ vs ALL HOP VARIETIES



Aroma Intensity= 100

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

info@aarlab.com
www.aarlab.com
AAR LAB - ADVANCED ANALYTICAL RESEARCH
2517 Advance Rd Ste. A Madison WI 53718
608-622-7522